

**United States Department of the Interior
Bureau of Land Management**

**Environmental Assessment
DOI-BLM-CO-S010-2013-0034**

September 2014

YG-2 Lateral

***Location:* Montezuma County, Colorado**

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BLM



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ACRONYMS

ACEC	Area of Critical Environmental Concern
ACMUA	Anasazi Culture Multiple Use Area
APD	Application for Permit to Drill
BLM	Bureau of Land Management
COGCC	Colorado Oil and Gas Conservation Commission
EA	Environmental Assessment
Ecosphere	Ecosphere Environmental Services
FEIS	Final Environmental Impact Statement
FSL	From the south line
FWL	From the west line
Kinder Morgan monument	Kinder Morgan CO ₂ Company, LP Canyon of the Ancients National Monument
MSDS	Material Safety Data Sheets
NEPA	National Environmental Policy Act
TRFO	Tres Rios Field Office
Woods Canyon	Woods Canyon Archeological Consultants

YG-2 Lateral

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1. Purpose and Need

1.1 Introduction

This Environmental Assessment (EA) has been prepared to disclose and analyze the environmental effects of Kinder Morgan CO₂ Company's (Kinder Morgan) proposal to drill a lateral on an existing well (Proposed Action). The EA is a site-specific analysis of potential effects that could result with implementation of the Proposed Action or alternatives to the Proposed Action. The EA assists the Bureau of Land Management (BLM) in project planning and ensures compliance with the National Environmental Policy Act (NEPA).

This chapter presents the purpose and need for the Proposed Action as well as the relevant issues, including those elements of the human environment that could be affected by the implementation of the Proposed Action. The potential environmental effects of the alternatives considered for each identified issue are analyzed in Chapter 4. The No Action alternative, which describes the baseline, is presented for comparison.

1.2 Background

Kinder Morgan is proposing to drill a new lateral from the existing YG-2 CO₂ production well. The Proposed Action would be located on the existing well on privately owned surface within the BLM, Tres Rios Field Office (TRFO), with the lateral well drilled into subsurface minerals owned by the federal government and administered by the BLM, Canyons of the Ancients National Monument (the monument). Kinder Morgan has submitted an Application for Permit to Drill (APD) to the BLM for the lateral component of the well. The existing well is located in Montezuma County, Colorado (Figure 1). The surface location of the existing well and the lease information are listed in Table 1.

The YG-2 well head is located approximately 200 feet from the exterior boundary of the monument on privately owned land (Figures 2 and 3).

Table 1. Lease summary and legal description for proposed lateral location

Well Name	Mineral Lease	Surface Location (Ownership)	Target Formation (Mineral Ownership)	Lateral Depth (Feet)
YG-2	COC 026376	1,524 feet from the south line (FSL) and 1,664 feet from the west line (FWL); Section 14, Township 37 North, Range 18 West (Fee)	Leadville (Federal)	8,378

The Colorado Oil and Gas Conservation Commission (COGCC) approved the permit for the original YG-2 well on March 29, 2012 and the Montezuma County Board of County Commissioners approved the Special Use and High Impact Permits for the well in April 2012. Kinder Morgan constructed a well pad and began drilling the well in the late fall of 2012. The pilot hole was finished on December 1, 2012 and a

lateral from the well was drilled to the north, into fee minerals. Production from the north lateral was not as high as expected, so in order to increase production rates, a second lateral from the well is proposed to access federal minerals.

The Surface Use Plan of Operations included in the APD includes project-specific design features that would achieve the project purpose and need, while also providing environmental protection measures. These design features are incorporated into the Proposed Action, described in Section 2.3, and the associated impact analysis in Chapter 4.

1.3 Need for the Proposed Action

Kinder Morgan filed an APD with the BLM on March 31, 2014. The BLM's need is to respond to the applicant's APD for the proposed YG-2 lateral in accordance with the Mineral Leasing Act of 1920, as amended by the Federal Land Policy and Management Act of 1976 and the Federal Onshore Oil and Gas Leasing Reform Act of 1987.

The BLM would consider the Proposed Action in a manner that: (1) avoids or reduces effects on resources and activities, as identified in the Resource Management Plans (RMP) (BLM 1985, 2010); (2) best meets the objectives of the BLM; (3) is consistent with the lease rights granted to the applicant; and (4) prevents unnecessary or undue degradation of public lands.

1.4 Purpose of the Proposed Action

The purpose of the Proposed Action is to provide the applicant the opportunity to develop oil and gas resources consistent with the rights granted from their Federal Lease COC-026376. It is expected that the proposed lateral will result in increased CO₂ production from the existing YG-2 well. Oil and gas exploration and development is recognized as an appropriate use of public lands in the San Juan/San Miguel Planning Area Record of Decision/Resource Management Plan (BLM 1985) and the Canyons of the Ancients Resource Management Plan (BLM 2010).

1.5 Decision to be Made

The BLM will decide whether or not to approve the APD, and if so, under what terms and conditions.

1.5.1 Conformance with BLM Land Use Plan(s)

Pursuant to 40 CFR 1508.20 and 1502.28, this EA tiers to the information and analysis contained in the San Juan/San Miguel Resource Management Plan and Environmental Impact Statement (EIS) (BLM 1985) and the Colorado Oil and Gas Leasing and Development Final EIS amendment to the Resource Management Plan (BLM 1991).

The Proposed Action is subject to and has been reviewed for conformance with the following land use plans (43 CFR 1610.5, BLM 1617.3) and Final Environmental Impact Statements (FEIS):

Plan:	San Juan/San Miguel Planning Area Resource Management Plan (BLM 1985)
Date Approved:	September 1985
Page Number:	Page 17—"BLM actively encourages and facilitates the development by private

	industry of public land mineral resources so national and local needs are satisfied and economically and environmentally sound exploration, extraction, and reclamation practices are provided.”
Amendment:	Record of Decision, San Juan/San Miguel Planning Area Resource Management Plan Amendment (BLM 1991) (The FEIS is also known as the Amendment to the RMP)
Date Approved:	October 1991
Page Number:	Page 11—“Facilitate orderly, economic, and environmentally sound exploration and development of oil and gas resources using balanced multiple-use management.” Page 2-2 of the FEIS states, “an EA would be completed on each APD or group of APDs in addition to the FEIS.”
Plan:	Canyons of the Ancients Resource Management Plan (BLM 2010)
Date Approved:	June 2010
Page Number:	Page 5 – “The Monument Proclamation requires that existing lease rights be honored. However, it also requires that development should not create any significant new impacts to cultural resources or to other objects that the Monument was established to protect. In order to implement management objectives, the preferred management strategy is to protect cultural resources, their associated settings, and surface and subsurface resources, especially in areas of high site density.”

The Proposed Action would fulfill the objective and intent of the 1985 San Juan/San Miguel RMP and the 1991 Amendment that public land mineral resources are developed in an environmentally sound way. The Proposed Action would fulfill the objective and intent of the 2010 Canyons of the Ancients National Monument RMP that mineral resources be developed in an environmentally sound way with special emphasis on protecting cultural resources within the monument, and thus is in conformance with both RMPs.

1.6 Relationships to Statutes, Regulations, and Other Plans

Exploration and development of federal oil and gas leases by private industry is an integral part of the BLM’s oil and gas leasing program under authority of the Mineral Leasing Act of 1920, as amended, the Mining and Minerals Policy Act of 1970 (30 U.S.C. 21), the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1761-1777), the Federal Onshore Oil and Gas Leasing Reform Act of 1987 (30 U.S.C. 195 et seq.), and applicable BLM Onshore Oil and Gas Orders (43 CFR 3160).

The BLM regulates oil and gas development to minimize environmental effects to public lands as required by numerous federal laws, including:

- The Mineral Leasing Act of 1920, as amended (30U.S.C. 181 et seq.)
- The Mining and Minerals Policy Act of 1970 (30 U.S.C. 21)
- The Federal Land Policy and Management Act of 1976, as amended (43 U.S.C. 1761-1777)
- The Federal Onshore Oil and Gas Leasing Reform Act of 1987 (30 U.S.C. 195 et seq.)
- The Endangered Species Act of 1973 (USC 4321 et seq.)
- The Migratory Bird Treaty Act of 1918, as amended (16 USC 703-712)
- The Bald and Golden Eagle Protection Act of 1940, as amended (16 USC 668-668d)

- The Federal Water Pollution Control Act of 1948, as amended (33 U.S.C. Chap. 26)
- The Clean Air Act of 1963, as amended (42 USC 7401 et seq.)
- Clean Water Act of 1972, amended 1977 (33 USC 1251 et seq.)
- The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 USC 103)
- The Antiquities Act of 1906, as amended (16 USC 431–433)
- The National Historic Preservation Act of 1966, as amended (16 USC 470 et seq.)
- The Archaeological and Historic Preservation Act of 1974 (16 USC 469-469c)
- The Archaeological Resources Protection Act of 1979, as amended (16 USC 470aa-mm)
- The American Indian Religious Freedom Act of 1978, as amended (42 USC 1996)
- The Native American Graves Protection and Repatriation Act of 1990 (25 USC 3001 et seq.)
- Executive Order 12898 of 1994 "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations"
- The National Environmental Policy Act of 1969
- The National Trails System Act of 1969, as amended (P.L. 90-543)

This EA considers the requirements of these laws and implementing regulations, as applicable, as part of the Proposed Action. The Proposed Action, including associated applicant-committed mitigation measures, complies with the laws and regulations indicated above.

1.7 Scoping and Identification of Issues

The Interdisciplinary Team assigned to the project completed a preliminary analysis of all resource areas, including the consideration of issues identified at the on-site visits. The Proposed Action was listed since May 23, 2014 on the BLM's online NEPA Register:

(http://www.blm.gov/co/st/en/BLM_Information/nepa/TRFO_NEPA.html).

In addition, a 30-day scoping period was offered as described in Section 5.2.

The issues that were determined to be present with the potential for relevant impacts from the Proposed Action include:

- What are the effects of the Proposed Action on Cultural Resources?
- What are the effects of the Proposed Action on Native American Religious Concerns?

1.8 Issues Considered but Eliminated from Further Analysis

The Interdisciplinary Team identified cultural and Native American religious and other concerns for detailed analysis in *Chapter 3: Affected Environment* and *Chapter 4: Environmental Effects*. The remainder of the resource areas were eliminated from further analysis. The eliminated resources and the reasoning for their exclusion are detailed below:

- **Air quality/greenhouse gas emissions** – The applicant prepared an emission inventory for the project. After review of the air emissions inventory it was determined the project activities would

be well below any permitting or Air Permit Emission Notification thresholds that would exist if the project were considered to be a “stationary source.”

- **Environmental Justice** – There is no potential for impacts from the project on minority or low-income populations and no potential for negative socioeconomics impacts.
- **Farmlands (Prime or Unique)** – The project is on Wetherhill Loam, 3 to 6 percent slope, which is considered Prime only if it is irrigated. Since the existing well pad is not irrigated, no Prime or Unique farmlands are expected to be disturbed.
- **Floodplains** – There are no floodplains present in the Project Area.
- **Fuels and Fire Management** – The monument is designated as “Fire Management Zone B,” an area where natural fire is generally not desired under current conditions and suppression is emphasized. Project design features include a fire response plan and on-site fire response equipment.
- **Invasive Species/Noxious Weeds** – There will be no surface disturbance within the monument; invasive/noxious weeds on private surface will be managed in compliance with county and state requirements and the landowner surface use agreement.
- **Lands/Access** – The project is located entirely within a unit and no public lands (surface) are involved.
- **Lands with Wilderness Characteristics** – There are no lands with wilderness characteristics, Wilderness Study Areas, or Wild and Scenic Rivers in the proposed Project Area.
- **Migratory Birds** – Project design features such as raptor clearance surveys if project activities occur during raptor breeding season provide adequate migratory bird protection measures.
- **Solid Minerals** – There is no potential for the Proposed Action to affect solid mineral resources. A review of mapping information indicates that no active miners, claims, or mineral material pits occur on BLM land in the Project Area. In addition, no known coal or potash resources occur in the Project Area. Federal solid minerals associated with the monument have been withdrawn from public entry.
- **Paleontology** - The location of the well is on an agricultural field with relatively deep soils so it would be unlikely that any paleontological resources occur near the ground surface.
- **Wastes (hazardous or solid)** – Project design features such as closed loop drilling and cuttings removal minimize the risk of hazardous waste contamination.
- **Water Resources/Quality (drinking/surface/ground)** –No streams are present near the well site on private or nearby federal lands. Ground water issues are not applicable because the well is already drilled through useable ground water zones.
- **Wild Horses and Burros** – Wild horses and burros are not present in the Project Area.
- **Wildlife Aquatic/Fish Habitat** – There are no streams or riparian areas in the Project Area.
- **Wildlife Terrestrial** – The project is on an existing well pad and in agricultural field; wildlife may be temporarily displaced.
- **Wetlands/Riparian Zones** – There are no riparian areas present near the well site.

2. Description of Alternatives, including Proposed Action

2.1 Introduction

Kinder Morgan has filed an APD with the BLM for the proposed YG-2 lateral, which is intended to develop federal minerals.

The existing YG-2 CO₂ well was drilled in December 2012 and has been producing from fee minerals since that time. However, Kinder Morgan has submitted an APD for a second lateral into federal minerals to the southeast of the existing well head. This would allow for more efficient and economical development of the mineral resources.

The No Action and Proposed Action alternatives are described below. The No Action alternative provides a baseline for comparing the effects of the Proposed Action. The Proposed Action incorporates the design features described by the applicant in the APD.

2.2 Alternative A - No Action

The BLM NEPA Handbook (H-1790-1) states that for EAs on externally initiated Proposed Actions, the No Action alternative generally means that the proposed activity would not take place. This alternative would deny the approval of the APD for the proposed YG-2 lateral. The BLM's authority to implement the No Action alternative may be limited because oil and gas leases allow drilling in the lease area subject to the stipulations of the specific lease agreement. The BLM can deny the APD if the proposal would violate lease stipulations and applicable laws and/or regulations and it can impose restrictions to prevent undue or unnecessary environmental degradation. The denial does not deny the right to drill and develop a leasehold and Kinder Morgan could submit an APD proposing an alternative lateral location, an alternative well location, or alternative design features to develop this lease in the future.

For the purposes of this analysis, the No Action alternative assumes that current land and resource uses on private land and activity levels would continue to occur in the Project area. The YG-2 well has already been drilled. It consists of a 5-acre well pad, 4400-foot pipeline, and access road—all located on private land (see Figures 1, 2 and 3). If the proposed APD were denied, the unused portions of the well pad would be reclaimed to landowner specifications. Usually, this includes reshaping the well pad to conform to the natural terrain as well as seeding and controlling state-listed noxious weeds. Production of CO₂ from fee minerals is ongoing, and it would continue throughout the well's approximately 30-year lifespan. Normal-producing CO₂ well operation requires visits approximately every week to monitor well production and pressure. Pipeline operations require monthly surface inspections and annual pressure testing of all lines. Therefore, normal operations of the existing YG-2 well and pipeline would require 52 vehicle trips per year, on average. Kinder Morgan will maintain the access roads by blading, ditching, snow shoveling, etc., as needed. When the well is no longer productive, the well pad and access road would be reclaimed to landowner specifications.

2.3 Alternative B - Proposed Action

Kinder Morgan filed an APD with the BLM to drill a lateral from the YG-2 CO₂ well on private land in Montezuma County, Colorado. The lateral would be drilled in the McElmo Dome Unit, to develop CO₂

mineral resources from the Leadville Formation. Drilling the lateral is a subsurface activity. Existing surface facilities on private land would be utilized (the approximately 5-acre well pad, 4,400-foot pipeline, and access road), as shown in Figures 1, 2, and 3. No new earthwork or surface disturbance would be required for drilling the proposed YG-2 lateral since no new facilities will need to be constructed.

Drilling activities are proposed to occur in the autumn of 2014, but may take place anytime in the 2 to 4 years after a permit is approved. The initial mobilization and drill rig setup takes approximately 1 week. Drilling the lateral would take approximately 3 weeks to complete. Logging activities and integrity testing would take an additional 1 week to complete; interim reclamation will occur once the well is producing, lasting approximately 1 week. Overall activities at the well would take approximately 6 weeks.

The drill rig, rig equipment, support trucks, and crew vehicles would access the location utilizing Kinder Morgan's designated truck route for the Yellow Jacket production area, via County Road U and County Road 14. Kinder Morgan estimates 225 vehicle trips would be required for the lateral drilling activities. Kinder Morgan would maintain the access roads to at least their current condition.

Approximately 2000 barrels/84,000 gallons of water would be required for the lateral drilling activities. The water would be purchased and hauled from the established Kinder Morgan water sources, either the Dolores Water Conservancy District canal or the City of Cortez.

All water and drilling fluids would be stored in tanks within secondary containment. A closed-loop drill cuttings management system would be used for the lateral drilling phase. The closed-loop system circulates drilling fluids and cuttings generated from drilling through a system of pipes and tanks. All piping and tanks associated with the closed-loop system are placed within secondary containment. No reserve pits are necessary for this project.

Maintenance, interim, and final reclamation of the well pad would be in compliance with Surface Use Agreement with the private landowner and the Conditions of Approval (COAs) for the original well APD and the lateral APD. These activities would take place as described in the No Action alternative with only minor modifications (for instance, permanent facilities on the well pad would be painted a BLM-approved color).

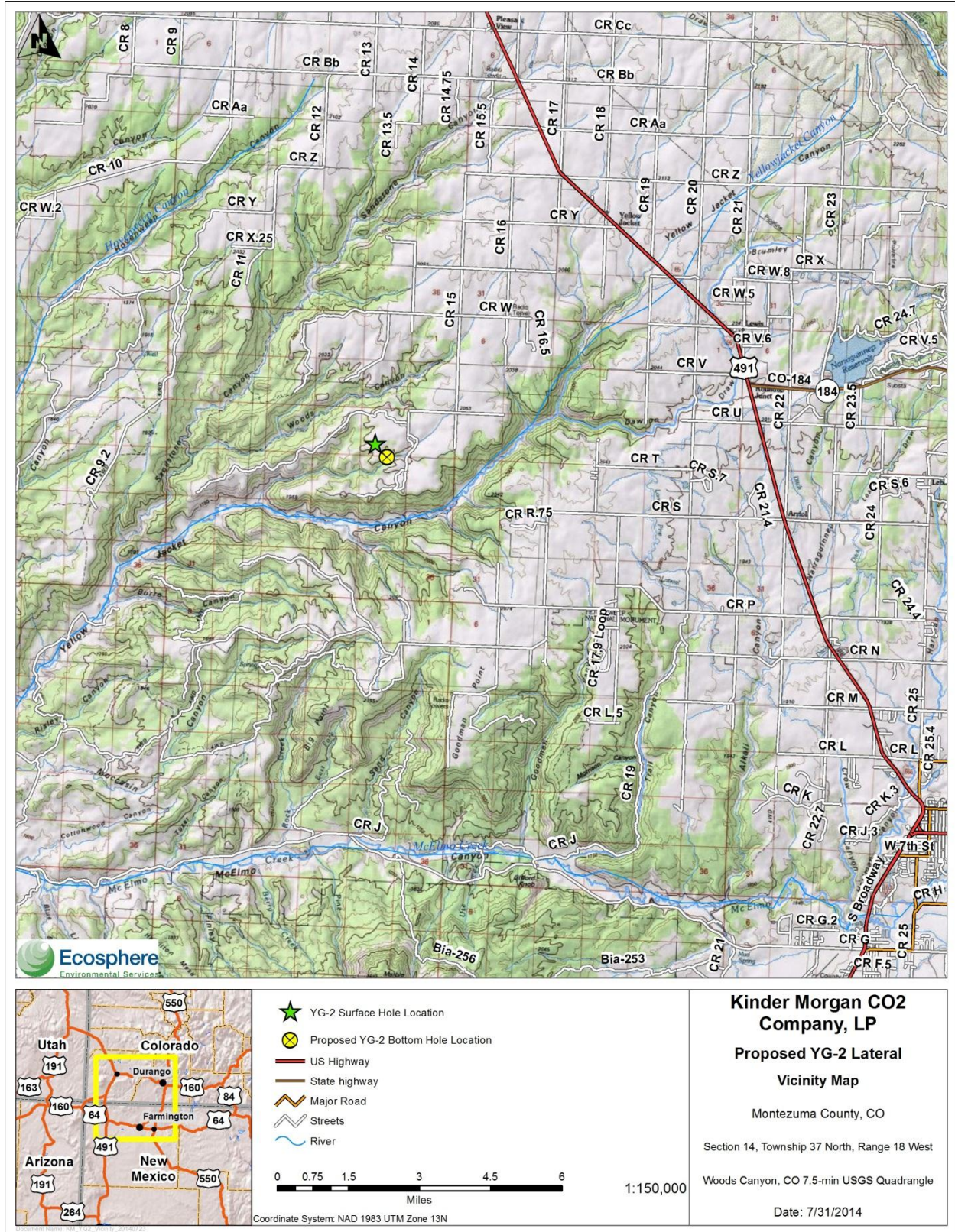


Figure 1: Vicinity of the YG-2 well

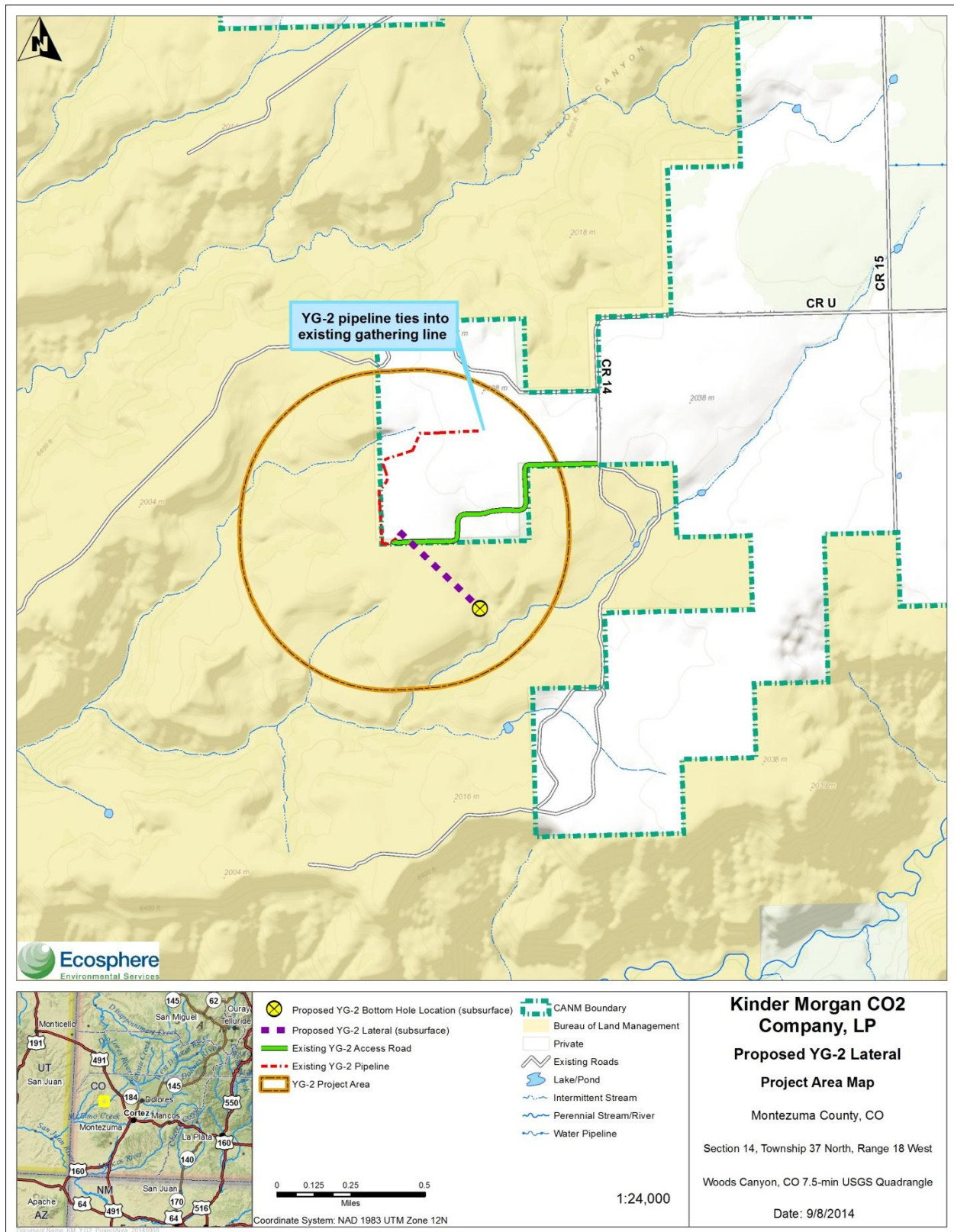


Figure 2: Proposed YG-2 lateral Project Area map

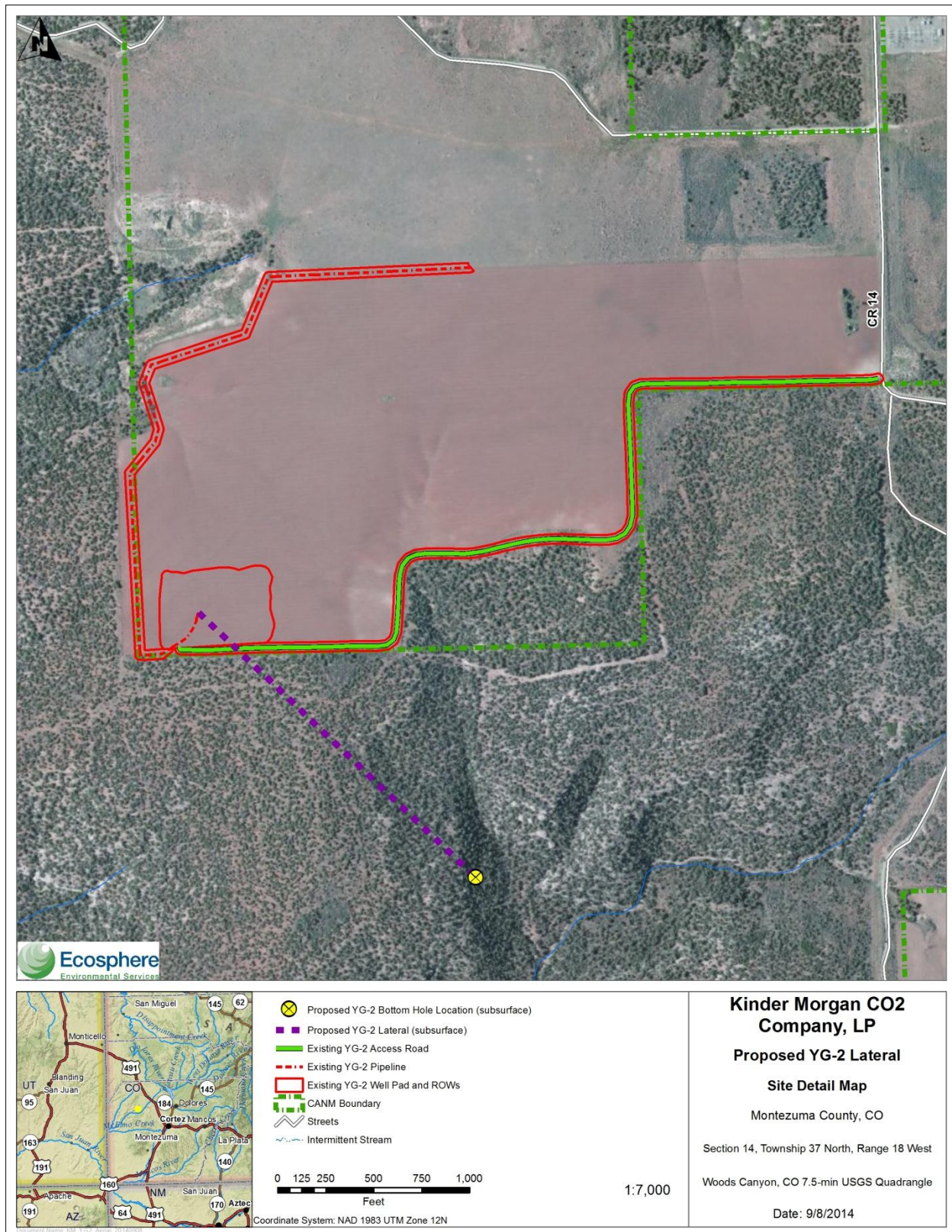


Figure 3: Proposed YG-2 lateral aerial map

2.3.1 Design Features of the Proposed Action

Kinder Morgan's proposal included design features such as adherence to the Surface Use Plan, stipulations, and standard operating procedures, and are an integral part of the Proposed Action. These design features are implemented to minimize or eliminate potential adverse effects to protected resources that include the following:

- Existing access roads would be maintained in as good or better condition than presently exists. The maintenance program would include (but not be limited to) ditch and road surface blading/maintenance, culvert maintenance, and installing additional drainage turnouts, if needed.
- Any spills would be promptly cleaned up and all wastes disposed as required by federal and state regulations.
- Following lateral drilling, interim reclamation would reduce the amount of surface disturbance at the existing well pad to approximately 0.9 acre.
- Water for drilling and completion would be hauled by truck from a privately owned, off-lease source. The preferred source would be the Dolores Water Conservancy District canal, with the alternate source being the City of Cortez. These water sources have consulted with the U.S. Fish and Wildlife Service regarding impacts of water withdrawals on threatened and endangered species.
- No reserve pit would be constructed. Produced water from the closed-loop system would be removed via vacuum truck and hauled for reuse to another drilling location or disposed in Kinder Morgan disposal wells.
- All components of the closed-loop drilling system and all non-fresh water tanks (including hose and manifold connections) would be located within impermeable, lined (with at least 30-mil liner) areas capable of containing 120 percent storage capacity of the largest container in the area. Absorbent pads, impermeable liners, or spill-guard systems would be placed under all drilling equipment engines. The liners would be visually inspected prior to installation on location. Any equipment placed on the liner would be placed on traction mats/pads protecting the liner surface. All solid drill cuttings waste would be collected and stored in leak-proof, roll-off containers and transported to and disposed at an off-site licensed commercial waste disposal facility. Drilling fluids would be recycled whenever practical.
- Degreasing machinery or equipment would occur on the liner in order to protect soils from contamination.
- Throughout the lifetime of the project, trash, and debris would be collected from the location and surrounding area and removed to the Montezuma County Landfill. Trash would be stored in an appropriate on-site trash bin that would prevent loss due to wind and that would be periodically hauled to a permitted landfill or disposal site.
- Sewage generated on-site would be stored in a Montezuma County-approved closed system and then hauled under existing permit to the City of Dolores licensed sewer treatment plant.
- Kinder Morgan and its contractors would ensure that all use, production, storage, transport, and disposal of hazardous materials or hazardous wastes associated with the drilling, completion, and production of the well would be in accordance with all applicable existing or hereafter published federal, state, and local government rules, regulations, and guidelines. A variety of chemicals

including lubricants, paints, and additives would be used during well drilling activities. These materials would be temporarily kept in limited quantities on the well pad. Material Safety Data Sheets (MSDS) would be maintained by Kinder Morgan contractors for all materials used on the location; chemical containers would display MSDS labels.

- During interim reclamation, those portions of the well pad deemed unnecessary for production would be shaped to conform to the natural terrain (using 100 percent of the stockpiled topsoil) and would be reseeded, leaving only a small teardrop for access to the wellhead during operations. Interim reclamation would begin within 6 months of testing and completion of the well, regardless of the timing of putting the well into production.
- Seed would be broadcast or drilled at an appropriate time following the winter season. The seed mix would match property owner specifications.
- Interim reclamation would be considered successful when the desired vegetative species are established, erosion is controlled, weeds are considered a minimum threat, and a uniform vegetative cover has been established with an individual plant density of at least 70 percent of pre-disturbance levels. Kinder Morgan would continue re-vegetation efforts until this Colorado Department of Public Health and Environment standard is met.
- Upon final reclamation, all compacted areas and areas devoid of vegetation on location would be ripped along the contour to a minimum of 6 inches in depth before the re-spread of topsoil and subsequent reseeding according to the landowner-specified seed mix. The access road would be shaped to conform to the natural terrain and left as rough as possible to deter vehicle travel. Access would be ripped (along the contour, when possible) to a minimum depth of 6 inches, water barred, and reseeded with an approved seed mix.
- No surface-disturbing activity would be allowed within ½ mile of documented active raptor nests from February 1 to August 31, annually, prior to a raptor nest occupancy survey for the current breeding season. This timing limitation applies to construction, drilling, completions operations, reclamation, placing of production equipment, and associated infrastructure to include roads, pipelines, power lines, etc.
- If the project were not planned for drilling prior to August 2014, Kinder Morgan would contact the BLM Wildlife Biologist to determine what new wildlife surveys would be required. Depending on survey findings, additional timing limitations or other protections may be necessary. Kinder Morgan would adhere to any wildlife restrictions that result from positive surveys and would not conduct activities from February 1 to August 31 until it receives written permission from the BLM Authorized Officer or the BLM Wildlife Biologist.
- The access roads and well pads would be adequately surfaced and shall be wetted down and compacted where needed to avoid dust and loss of soil through wind or water erosion.

2.4 Alternatives Considered but Eliminated from Detailed Analysis

No other alternatives are needed to address any unresolved resource conflicts.

3. Affected Environment

3.1 Introduction

This chapter presents the existing environment of the Project Area that has the potential for environmental consequences, as identified in the issues statement in Section 1.7. This chapter provides the baseline for comparison of effects/consequences described in Chapter 4.

3.2 General Setting

The Project Area is considered the YG-2 well pad area and a ½-mile buffer surrounding the well pad (Figure 2). The well pad is located in Montezuma County, in the Yellow Jacket Canyon drainage area. The well pad is located on private land, on currently inactive agricultural lands. The adjacent monument lands consist of a mix of Pinon-Juniper woodlands and sage grassland vegetation types.

3.3 Cultural Resources

Existing cultural resources inventory data indicate that the vicinity of the Project Area has been utilized and inhabited by human groups from as early as 5,500 BC to the present. It was intensely occupied by Ancestral Puebloan people between AD 675 and AD 1290. The Ancestral Pueblos were agricultural people who built settlements on the mesas and canyons of the area. Archaeologists divide the chronology of Ancestral Puebloan occupation into a series of developmental periods: (Basketmaker II (AD 1-500), Basketmaker III (AD 500-750), Pueblo I (AD 750-900), Pueblo II (AD 900-1100), and Pueblo III (AD 1100-1300) that reflect changes in culture during the 1,300 years of occupation. Surveys suggest intensive occupation of the Project Area in the Basketmaker III, Pueblo II, and Pueblo III periods. During the Basketmaker III period, Ancestral Pueblos built single and multiple pit house settlements on deep soils in the center of the mesa. During the Pueblo II period, Ancestral Pueblos built single or multiple habitation units composed of masonry and adobe surface rooms and kivas that were also situated on deep soils of the mesa centers. During the last century of the occupation in the Pueblo III period, Ancestral Pueblos built large villages made of masonry situated away from the mesa centers near spring sources at the heads of canyons.

Prior to its designation as a National Monument, the monument was known as the Anasazi Culture Multiple Use Area (ACMUA) – Area of Critical Environmental Concern (–ACEC). The ACMUA was designated on October 2, 1985 in the San Juan/San Miguel RMP based on the collective significance and density of cultural resources. An ACEC management plan was developed to guide overall management of the ACEC with the objective of reducing impacts to significant cultural resources and their setting, as directed in the management plan. Subsequent site or area-specific management plans have also been developed and implemented within the ACEC prior to establishment of the monument. The Presidential Proclamation that established the monument states, “the Secretary of the Interior shall manage the development, subject to valid existing rights, so as not to create any new impacts that interfere with the proper care and management of the objects protected by this proclamation...”

Archaeologists from Woods Canyon Archeological Consultants (Woods Canyon) (BLM permit BLM-C-39470) conducted a series of cultural investigations in association with the project. In fall 2011, a Class III archaeological survey was conducted of the proposed well pad, access road, and flowline. In spring

2012, a survey was completed of a larger buffer around the well pad and flowline and a survey was conducted of the rerouted access road. As a result, a 40-acre area surveyed for the well pad and an area 660 feet wide was surveyed for the flowline and access road, totaling 107 acres of private surface and 40 acres of Federal (monument) surface. Prior to field surveys, a records search was undertaken at the monument and State of Colorado Office of Archaeology and Historic Preservation office in order to identify previously recorded sites within and in the proximity to the Project Area. A cultural resources report has been submitted to the monument staff and the State of Colorado Office of Archaeology and Historic Preservation (Class III Archaeological Inventory of Kinder Morgan's YG2 Well, Access Road, and Pipeline, Montezuma County Colorado (CANM13006) (MT.LM.492).

In total, 32 sites (6 previously recorded and 26 newly recorded) were documented during the survey for the YG2 well/lateral project. Thirty-one sites contain only prehistoric components and one site contains both prehistoric and historic components. Twenty-one sites are recommended or officially determined to the National Register of Historic Places (NRHP), seven sites are recommended "need data," and four sites are recommended "not eligible" to the NRHP.

3.4 Native American Religious Concerns

The monument consults with 25 tribes (listed below) that have traditional ties to the monument's landscape or are culturally affiliated to the Ancestral Puebloan culture group.

1. Pueblo of Acoma
2. Pueblo de Cochiti
3. The Hopi Tribe
4. Pueblo of Isleta
5. Pueblo of Jemez
6. Jicarilla Apache Nation
7. Pueblo of Laguna
8. Pueblo of Nambe
9. The Navajo Nation
10. Ute Indian Tribe of the Uintah and Ouray Reservation
11. Picuris Pueblo
12. Pueblo of Pojoaque
13. Pueblo of San Felipe
14. Pueblo of San Ildefonso
15. Ohkay Owingeh
16. Pueblo of Sandia
17. Pueblo of Santa Ana
18. Pueblo of Santa Clara
19. Kewa Pueblo
20. Pueblo of Taos
21. Pueblo of Tesuque
22. Ute Mountain Ute Tribe
23. The Southern Ute Indian Tribe
24. Pueblo of Zia

25. The Zuni Tribe of the Zuni Reservation

The Tribes, like all members of the public, are given opportunities to review the BLM's online NEPA Register (http://www.blm.gov/co/st/en/BLM_Information/nepa/TRFO_NEPA.html). The proposed project has been listed on this register since May 23, 2014.

4. Environmental Effects

4.1 Introduction

This section describes the potential environmental effects of the Proposed Action on the resources in the Project Area, as described in Chapter 3. Applicant-committed Design Features are described by the operator in the APD and are analyzed as part of the Proposed Action. The BLM may apply COAs that will be analyzed as mitigation measures after conducting the effects analysis.

4.2 General Analysis Assumptions and Guidelines

In accordance with 40 CFR 1502.16, potential environmental effects are discussed in this Chapter for each resource in the No Action and Proposed Action alternatives. An environmental effect is defined as a change in the quality or quantity of a given resource due to a modification in the existing environment that results from project-related activities. Effects may be beneficial or adverse; may be a primary result (direct) or secondary result (indirect) of an action; and may be short term, long term, or permanent. The Council on Environmental Quality regulations (40 CFR 1500-1508) defines the impacts and effects that must be addressed and considered by federal agencies in satisfying the requirements of the NEPA process.

The environmental analysis was completed with existing resource information and on-the-ground field surveys completed in 2011, 2012, and 2013. Effects may vary in degree from a slight discernible change to a total change in the environment. Unless specifically described, short-term effects are defined as those lasting 5 years or less and long-term effects are defined as lasting more than 5 years.

4.3 Cultural Resources

Proposed Action

The proposed YG2 well will be drilled on private surface to access federal minerals managed as part of the monument. The project will utilize previously constructed infrastructure that is located on private land and will cause no additional surface disturbance. The surface disturbance associated with this project has already occurred; therefore, no cultural resources will be impacted by the Proposed Action.

No Action Alternative

The No Action Alternative would mean that the proposed Federal well would not be drilled or developed. No new impacts would occur under this alternative. Potential cultural resource impacts could be reduced by the No Action Alternative, but not completely eliminated, due to continued production and maintenance of the existing well and the potential for drilling new laterals into the private mineral estate.

4.4 Native American Religious Concerns

Proposed Action

No Native American religious concerns regarding the proposed project were expressed verbally or in writing. Project COAs that have been developed through past Tribal consultations are reiterated and have been incorporated into the project Surface Use Plan of Operations.

No Action Alternative

No Native American religious concerns regarding the proposed project were expressed verbally or in writing and no new impacts would occur under this Alternative.

4.5 Cumulative Resources

There are no direct or indirect effects to resources; therefore there would be no anticipated cumulative effects.

5. Consultation and Coordination

5.1 Persons, Groups and Agencies Consulted

The following persons provided information on resource concerns and project design descriptions.

Table 2. List of Persons, Groups, and Agencies Consulted

Name	Purpose and Authorities for Consultation or Coordination
Matt Hammond	District Wildlife Manager, Colorado Parks and Wildlife
Jim Horn	Colorado Department of Transportation, Traffic Resident Engineer
Dave Kubezcko	Colorado Oil and Gas Conservation Commission – Oil and Gas Location Assessment
Andy Antipas	Kinder Morgan CO ₂ Company, Permitting
Montezuma County Board of County Commissioners	County High Impact and Special Use Permit for original well pad

5.2 Summary of Public Participation

During the preparation of this EA, the public was notified of the Proposed Action by posting it on the BLM TRFO's NEPA Register (http://www.blm.gov/co/st/en/BLM_Information/nepa/TRFO_NEPA.html) on May 23, 2014.

A public scoping period was offered between May 11, 2014 and June 11, 2014. One letter was received from two members of the public. The letter had questions regarding NHPA Section 106 compliance for the original and proposed well drilling activities, the BLM consultation process for the original well drilling and “piecemeal analysis” for development within the monument.

5.3 List of Preparers

This EA was prepared by Ecosphere Environmental Services (Ecosphere) according to direction from the BLM staff. The following agency employees participated on the interdisciplinary team on this environmental analysis.

Table 3. BLM List of Preparers

Name	Title	Responsible for the following Resource Analysis
Tracy Perfors	Natural Resource Specialist	Project Manager
Chad Meister	Natural Resource Specialist	Air Quality; Greenhouse Gas Emissions
Vince MacMillan	Archaeologist	Cultural; Native American Religious Concerns
Kelly Palmer	Hydrologist	Farmlands; Floodplains; Soils; Water Resources/Quality; Wetlands
Nathaniel West	Wildlife Biologist	Wildlife; Migratory Birds; Special Status Animal Species; Threatened, Endangered or Candidate Animal Species; Fish Habitat;
Mike Jensen	Botanist	Invasive Species/Noxious Weeds; Rangeland; Special Status Plant Species; Threatened, Endangered or Candidate Plant Species; Vegetation; Wild Horses and Burros
David Epstein	Economist	Environmental Justice; Socio-Economics
Harrison Griffin	Realty Specialist	Lands/Access

Name	Title	Responsible for the following Resource Analysis
Brad Pietruszka	Fire Management Specialist	Fuels/Fire Management
Victoria Atkins	Outdoor Recreation Planner	Lands with Wilderness Characteristics; Recreation; Visual; Wild and Scenic Rivers; Wilderness/Wilderness Study Areas
John Pecor	Petroleum Engineer	Mineral Resources; Waste
Helen Mary Johnson	Geologist	Solid Minerals
Jamie Blair	Geologist	Paleontology

Table 4. Non-BLM Preparers

Name	Title and Company	Responsible for the Following Resource Analysis
Keith Fox	Project Coordinator, Ecosphere	Project Manager
Aimee Way	Wildlife Biologist, Ecosphere	Assistant Project Manager, Chapters 1 and 2; Migratory Birds; Threatened, Endangered and Candidate Animal Species; Visual Resources
Hondo Brisbin	Botanist, Ecosphere	Vegetation; Threatened, Endangered and Candidate Plant Species
Matthew Smith	Ecologist, Ecosphere	Cultural Resources; Recreation; Paleontology; Soils; Water Resources and Quality
Laura Getts	GIS Specialist, Ecosphere	Mapping
Jerry Fetterman	Woods Canyon	Cultural; Native American Religious Concerns

6. References

Bureau of Land Management (BLM). 1985. San Juan/San Miguel Planning Area Resource Management Plan. Montrose District, CO.

Bureau of Land Management (BLM). 1991. San Juan/San Miguel Resource Management Plan Amendment. Montrose, CO.

Bureau of Land Management (BLM). 2010. Record of Decision and Resource Management Plan for Canyons of the Ancients National Monument. U.S. Department of the Interior, Bureau of Land Management, Canyons of the Ancients National Monument, Dolores, Colorado.

Appendix A: Conditions of Approval

BLM Conditions of Approval (COA)

Exceptions or waivers from these COA are only granted with written permission from the BLM Tres Rios Field Office Natural Resource Specialist (NRS) —Tracy Perfors at (970) 882-6856.

1. The operator is required to follow the surface protections in the YG2 Surface Use Plan (SUP) and permit Conditions of Approval (COA). A copy of the approved permit, Surface Use Plan, and COA's should be on site during construction and drilling. In the event of a conflict, these COA take precedence over any or all terms and conditions set forth in the SUP.
2. To clarify the potential contradiction in the Surface Use Plan, 1B, which states "Existing access will be maintained in as good or better condition than presently exists. The maintenance program will include (but not be limited to) ditch and road surface blading/maintenance, culvert maintenance, and installing additional drainage turnouts if needed." and 2A, which states, "No new roads need to be constructed, the project will utilize the existing road, well pad, and pipeline, and no new surface disturbance is needed.": No new surface disturbance is authorized, to include construction or maintenance of stormwater controls, beyond the existing borrow ditch of the access road.